

E26 1 PN=BR 9810991
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 E37 1 PN=BR 9811002
 E38 1 PN=BR 9811004
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 E41 1 PN=BR 9811007
 E42 1 PN=BR 9811008
 E43 1 PN=BR 9811009
 E44 1 PN=BR 9811010
 E45 1 PN=BR 9811011
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 E47 1 PN=BR 9811013
 E48 1 PN=BR 9811014
 E49 1 PN=BR 9811015
 E50 1 PN=BR 9811016

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S1 1 PN='BR 9810967'

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DIALOG(R)File 351: Derwent WPI
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0009253575 Drawing available

WPI Acc no: 1999-181268/199915

Related WPI Acc No: 1996-465320; 1997-363998; 1998-363180; 1999-154174; 1999-154175; 1999-154176; 1999-154177; 1999-154178; 1999-154179; 1999-243551; 2002-060946; 2002-499082; 2002-705909; 2002-722051; 2002-722052; 2003-677663; 2003-898213; 2004-155029; 2004-478232; 2004-579235; 2004-623798; 2005-809338; 2007-015228

XRPX Acc No: N1999-133079

method for decrypting an instance of service that has been decrypted with short-term key

Patent Assignee: SCIENTIFIC-ATLANTA INC (SCAT)

Inventor: AKINS G L; PALGON M S; PINDER H G; WASILEWSKI A J; AKINS G

Patent Family (8 patents, 79 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 1999009743	A2	19990225	WO 1998US16079	A	19980731	199915	B

AU 199915816	A	19990308	AU 199915816	A	19980731	199929	E
EP 1000511	A2	20000517	EP 1998960147	A	19980731	200028	E
			WO 1998US16079	A	19980731		
BR 199810967	A	20011030	BR 199810967	A	19980731	200173	E
			WO 1998US16079	A	19980731		
EP 1000511	B1	20011114	EP 1998960147	A	19980731	200175	E
			WO 1998US16079	A	19980731		
DE 69802540	E	20011220	DE 69802540	A	19980731	200207	E
			EP 1998960147	A	19980731		
			WO 1998US16079	A	19980731		
JP 2003521820	W	20030715	WO 1998US16079	A	19980731	200347	E
			JP 2000510276	A	19980731		
JP 2005253109	A	20050915	JP 2000510276	A	19980731	200560	E
			JP 2005120425	A	20050418		

Priority Applications (no., kind, date): US 199754575 P 19970801; US 1998126921 A 19980731
 Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
WO 1999009743	A2	EN	113	29	
National Designated States,Original					AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW
Regional Designated States,Original					AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW
AU 199915816	A	EN			Based on OPI patent
EP 1000511	A2	EN			PCT Application
					Based on OPI patent
Regional Designated States,Original					WO 1999009743
BR 199810967	A	PT			PCT Application
					Based on OPI patent
EP 1000511	B1	EN			WO 1999009743
					Based on OPI patent
Regional Designated States,Original					WO 1998US16079
DE 69802540	E	DE			Application
					PCT Application
					Based on OPI patent
					EP 1998960147
					WO 1998US16079
					EP 1000511

JP 2003521820	W	JA	136	Based on OPI patent	WO 1999009743
JP 2005253109	A	JA	59	PCT Application	WO 1998US16079
				Based on OPI patent	WO 1999009743
				Division of application	JP 2000510276

Alerting Abstract WO A2

NOVELTY - The method involves receiving a second message in a receiver together with the instance of the service. The second message includes a key derivation value that is used with a long-term key to obtain the short-term key to decrypt the instance of the service.

DESCRIPTION - A control word is combined into an encrypted coded message (ECM) (107) with other service-related information. The ECM (107) is authenticated by Control Word Encrypt & Message Authenticate function (204) which produces a message authentication code using a keyed-hash value derived from the message content combined with a secret which can be shared with the receiving set-top box (113). This secret is preferably part or all of a multisession key (MSS) (208). The message authentication code is appended to the rest of the ECM (107). The CAW (202) is always encrypted before being sent along with the other parts of the ECM to MX (200). This encryption is preferably a symmetric cipher such as the Triple-DES algorithm using two distinct 56-bit keys (which taken together comprise MSS (208)).

USE - The invention concerns systems for protecting information and more particularly concerns systems for protecting information that is transmitted by a wired or wireless medium against unauthorized access.

ADVANTAGE - The service distribution organizations require access restrictions which are both more secure and more flexible than those in conventional systems

DESCRIPTION OF DRAWINGS - The drawing is a block diagram of service instance encryption techniques.

107 encrypted coded message

204 Control Word Encrypt & Message Authenticate function

200 MX

Title Terms /Index Terms/Additional Words: METHOD; INSTANCE; SERVICE; SHORT; TERM; KEY

Class Codes**International Patent Classification**

IPC	Class Level	Scope	Position	Status	Version Date
H04L-009/08			Main		"Version 7"
H04H-001/00; H04N-007/167; H04N-007/173			Secondary		"Version 7"
H04H-0001/00	A	I	L	R	20060101
H04L-0009/08	A	I	L	R	20060101
H04N-0005/00	A	I		R	20060101
H04N-0007/16	A	I		R	20060101
H04N-0007/167	A	I		R	20060101
H04N-0007/173	A	I	F	R	20060101

H04H-0001/00	C	I	L	R	20060101
H04L-0009/08	C	I	F	R	20060101
H04N-0005/00	C	I		R	20060101
H04N-0007/16	C	I		R	20060101
H04N-0007/167	C	I		R	20060101
H04N-0007/173	C	I	L	R	20060101

File Segment: EPI;
 DWPI Class: W02; W03
 Manual Codes (EPI/S-X): W02-F05A1B; W03-A16C3A

Original Publication Data by Authority

Australia

Publication No. AU 199915816 A (Update 199929 E)

Publication Date: 19990308

Assignee: SCIENTIFIC-ATLANTA INC; US (SCAT)

Language: EN

Application: AU 199915816 A 19980731 (Local application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: WO 1999009743 A (Based on OPI patent)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08

(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00

(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16

(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167

(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173

(R,I,M,JP,20060101,20051220,C,L)

Brazil

Publication No. BR 199810967 A (Update 2001173 E)

Publication Date: 20011030

Assignee: SCIENTIFIC-ATLANTA INC (SCAT)

Inventor: WASILEWSKI A J

AKINS G L

PALGON M S

PINDER H G

Language: PT

Application: BR 199810967 A 19980731 (Local application)

WO 1998US16079 A 19980731 (PCT Application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: WO 1999009743 A (Based on OPI patent)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00
(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08
(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00
(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16
(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167
(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173
(R,I,M,JP,20060101,20051220,C,L)

Germany

Publication No. DE 69802540 E (Update 200207 E)

Publication Date: 20011220

Assignee: SCIENTIFIC-ATLANTA INC; US (SCAT)

Language: DE

Application: DE 69802540 A 19980731 (Local application)

EP 1998960147 A 19980731 (Application)

WO 1998US16079 A 19980731 (PCT Application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: EP 1000511 A (Based on OPI patent)

WO 1999009743 A (Based on OPI patent)

EPO

Publication No. EP 1000511 A2 (Update 200028 E)

Publication Date: 20000517

Assignee: SCIENTIFIC-ATLANTA, INC., One Technology Parkway South, Norcross, Georgia 30092, US

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Agent: Kugele, Bernhard, NOVAPAT INTERNATIONAL SA, 9, Rue du Valais, 1202 Geneve, CH

Language: EN

Application: EP 1998960147 A 19980731 (Local application)

WO 1998US16079 A 19980731 (PCT Application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: WO 1999009743 A (Based on OPI patent)

Designated States: (Regional Original) DE FR GB IT NL

Original IPC: H04N-7/167(A)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08

(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00

(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16

(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167

(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173

(R,I,M,JP,20060101,20051220,C,L)

Original Abstract:

A cable television system provides conditional access to services. The cable television system includes a headend from which service "instances", or programs, are broadcast and a plurality of set top units for receiving the instances and selectively decrypting the instances for display to system subscribers. The service instances are encrypted using public and/or private keys provided by service providers or central authorization agents. Keys used by the set tops for selective decryption may also be public or private in nature, and such keys may be reassigned at different times to provide a cable television system in which piracy concerns are minimized.

Publication No. EP 1000511 B1 (Update 200175 E)

Publication Date: 20011114

Assignee: Scientific-Atlanta, Inc., 5030 Sugarloaf Parkway, Lawrenceville, GA 30044, US

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Agent: Kugele, Bernhard, NOVAPAT INTERNATIONAL SA, 9, Rue du Valais, 1202 Geneve, CH

Language: EN

Application: EP 1998960147 A 19980731 (Local application)

WO 1998US16079 A 19980731 (PCT Application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: WO 1999009743 A (Based on OPI patent)

Designated States: (Regional Original) DE FR GB IT NL

Original IPC: H04N-7/167(A)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08

(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00

(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16

(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167

(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173

(R,I,M,JP,20060101,20051220,C,L)

Claim:

1. Verfahren der Entschlüsselung einer Diensteeinheit (325), die mit einem gegebenen Kurzzeitschlüssel (319) verschlüsselt wurde, wobei das Verfahren in einem Empfänger (333) ausgeführt wird, der ein Öffentlich/Privat-Schlüsselpaar besitzt, und das Verfahren durch die folgenden Schritte gekennzeichnet ist:

- o im Empfänger eine erste Nachricht (315) zu empfangen, deren Inhalt einen ersten Langzeitschlüssel (309) einschließt und unter Verwendung des öffentlichen Schlüssels (312) für den Empfänger (333) verschlüsselt wurde;
- o den privaten Schlüssel (337) zur Entschlüsselung des Inhalts zu verwenden;
- o den ersten Schlüssel (309) zu speichern;
- o im Empfänger (333) zusammen mit der verschlüsselten Diensteeinheit (329) eine zweite Nachricht (323) zu empfangen, wobei die zweite Nachricht (323) einen Indikator für einen zweiten Kurzzeitschlüssel (319) einschließt;
- o den Indikator und den ersten Schlüssel (309) zu benutzen, um den zweiten Schlüssel zu erhalten; worin der zweite Schlüssel dem gegebenen Schlüssel (319), mit dem der Dienst verschlüsselt wurde, gleichwertig ist, und
- o den zweiten Schlüssel zur Entschlüsselung der empfangenen Diensteeinheit zu

verwenden.

1. A method of decrypting an instance of a service (325) that has been encrypted with a given short-term key (319), the method being carried out in a receiver (333) that has a public key-private key pair and the method being **characterised by** the following steps:
 - o receiving a first message (315) in the receiver whose contents include a first long-term key (309), the contents having been encrypted using the public key (312) for the receiver (333);
 - o using the private key (337) to decrypt the contents;
 - o storing the first key (309);
 - o receiving a second message (323) in the receiver (333) together with the encrypted instance of the service (329), the second message (323) including an indicator for a second short-term key (319);
 - o using the indicator on the first key (309) to obtain the second key; wherein the second key is equivalent to the given key (319) that encrypted the service, and
 - o using the second key to decrypt the received instance of the service.

1. Procéde de decryptage d'une instance d'un service (326) qui etait cryptee avec une cle a court terme donnee (319), le procede etant execute dans un recepteur (333) qui comporte une paire de cle publique-cle privee et le procede etant **caracterise par** les etapes suivantes:
 - o recevoir un premier message (315) dans le recepteur dont le contenu comprend une premiere cle a long terme (309), le contenu ayant ete crypte en utilisant la cle publique (312) pour le recepteur (333),
 - o utiliser la cle privee (337) pour decrypter le contenu,
 - o memoriser la premiere cle (309),
 - o recevoir un second message (323) dans le recepteur (333) en meme temps que l'instance cryptee du service (329), le second message (323) comprenant un indicateur pour une seconde cle a court terme (319),
 - o utiliser l'indicateur et la premiere cle (309) pour obtenir la seconde cle, dans lequel la seconde cle est equivalente a la cle donnee (319) qui a crypte le service, et
 - o utiliser la seconde cle pour decrypter l'instance recue du service.

Japan

Publication No. JP 2003521820 W (Update 200347 E)

Publication Date: 20030715

Language: JA (136 pages)

Application: WO 1998US16079 A 19980731 (PCT Application)

JP 2000510276 A 19980731 (Local application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Related Publication: WO 1999009743 A (Based on OPI patent)

Original IPC: H04L-9/08(A) H04H-1/00(B) H04N-7/167(B) H04N-7/173(B)
Current IPC: H04L-9/08(A) H04H-1/00(B) H04N-7/167(B) H04N-7/173(B)

Publication No. JP 2005253109 A (Update 200560 E)

Publication Date: 20050915

CONDITIONAL ACCESS SYSTEM

Assignee: SCIENTIFIC-ATLANTA INC (SCAT)

Inventor: AKINS GLENDON L III

PALGON MICHAEL S

PINDER HOWARD G

WASILEWSKI ANTHONY J

Language: JA (59 pages)

Application: JP 2000510276 A 19980731 (Division of application)

JP 2005120425 A 20050418 (Local application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Original IPC: H04L-9/08(A)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08

(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00

(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16

(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167

(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220,A,F) H04N-7/173

(R,I,M,JP,20060101,20051220,C,L)

WIPO

Publication No. WO 1999009743 A2 (Update 199915 B)

Publication Date: 19990225

CONDITIONAL ACCESS SYSTEM

RESEAU D'ACCES CONDITIONNEL

Assignee: SCIENTIFIC-ATLANTA, INC., Intellectual Property Dept., One Technology Parkway South, Norcross, GA 30092, US Residence: US Nationality: US (SCAT)

Inventor: AKINS, Glendon, L., III, 2510 Windward Lane N.E., Gainesville, GA 30501, US

PALGON, Michael, S., 1196 Poplar Grove Drive, Atlanta, GA 30306, US

PINDER, Howard, G., 4317 Stilson Circle, Norcross, GA 30092, US

WASILEWSKI, Anthony, J., 10680 Wren Ridge Road, Alpharetta, GA 30022, US

Agent: GARDNER, Kelly, A., Scientific-Atlantic, Inc., Intellectual Property Dept., One Technology Parkway South, Norcross, GA 30092, US

Language: EN (113 pages, 29 drawings)

Application: WO 1998US16079 A 19980731 (Local application)

Priority: US 199754575 P 19970801

US 1998126921 A 19980731

Designated States: (National Original) AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW

(Regional Original) AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW

Original IPC: H04N-7/167(A)

Current IPC: H04H-1/00(R,I,M,JP,20060101,20051220,A,L) H04H-1/00

(R,I,M,JP,20060101,20051220,C,L) H04L-9/08(R,I,M,JP,20060101,20051220,A,L) H04L-9/08
(R,I,M,JP,20060101,20060310,C,F) H04N-5/00(R,I,M,EP,20060101,20051008,A) H04N-5/00
(R,I,M,EP,20060101,20051008,C) H04N-7/16(R,I,M,EP,20060101,20051008,A) H04N-7/16
(R,I,M,EP,20060101,20051008,C) H04N-7/167(R,I,M,EP,20060101,20051008,A) H04N-7/167
(R,I,M,EP,20060101,20051008,C) H04N-7/173(R,I,M,JP,20060101,20051220, A,F) H04N-7/173
(R,I,M,JP,20060101,20051220,C,L)

Original Abstract:

A cable television system provides conditional access to services. The cable television system includes a headend from which service "instances", or programs, are broadcast and a plurality of set top units for receiving the instances and selectively decrypting the instances for display to system subscribers. The service instances are encrypted using public and/or private keys provided by service providers or central authorization agents. Keys used by the set tops for selective decryption may also be public or private in nature, and such keys may be reassigned at different times to provide a cable television system in which piracy concerns are minimized.

Un reseau de television par cable assure un acces conditionnel a des services. Le reseau de television par cable comprend une tete de reseau a partir de laquelle on diffuse les "instances" de service ou programmes. Ce reseau comprend aussi une pluralite d'unites decodeurs concues pour recevoir les instances et dechiffrer selectivement les instances qui vont s'afficher pour les abones du reseau. Les instances de service sont chiffrees par des cles publiques et/ou privees fournies par des fournisseurs de service ou des agents d'autorisation centraux. Les cles utilisees par les decodeurs permettant un dechiffrement selectif peuvent aussi etre publiques ou privees et de telles cles peuvent etre reaffectees a differents moments pour assurer un reseau de television par cable dans lequel les risques de piratage sont minimises.

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